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No Days 2, 5 or 6

FOR INTERNAL ROUTING ONLY

CODE	NAME	CODE	NAME
	APOLLO - 8 DSE		
	Onboard Voice Trans-		
	cription	*Pogo on SII 21, 26*	
Hey, foot the moon 73	*"Burn complete" 88*	*Lovell "my best flight" 29*	
	Borman: "go to bed" 162	*SECO 36*	
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	Borman: "Seconal made me sick." 233		
	Trouble telling the holes from the bumps 74		*"We're going home," Borman, 248*
	"Hey, I got the moon" 73		*"Frank took a picture" 92*
	First AOS 88		
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	lost contact or Heat prediction 91, 67		*"Come on, John Glenn" 260*
	Freeman 103		
	Von Braun, Anders 103, 105		
	"If we only had a geologist" 129		
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	"Give me the camera, quick" 113 (earth shot)		
	Urine Stinks 198		
	Borman: let's not say anything 'till we're on the camera" 208		
	"We've got an earthset picture for Life! " 225		
	Borman: "looks to me like we are now to be going the other way." 229		
	Anders: "Have this baby held at 2½ days long ... " 233		
	Anders "What did you take picture of, Frank", p 92		

Hey, I got the moon ... *MSC Letter 2/1/73* ... *CLASSIFICATION Unclassified* ...

00 04 48 59	CDR	You still got it, Bill?
00 04 49 04	LMP	We're going right to it. ...
00 04 49 14	CDR	Can you roll at all?
00 04 49 19	LMP	Huh? I don't want to, now.
00 04 49 44	LMP	It's about - in the XYZ plane, it's about 10 degrees ... Yes, right out here ...
00 04 50 34	CDR	Go ahead, Houston; Apollo 8.
00 04 50 41	CDR	Bill is the only one that can see it. Just a minute.
00 04 50 45	CDR	We're 90 degrees from its X-axis - -
00 10 19 38	SC	... 1, 2, 3, 4, 5; 5, 4, 3, 2, 1.
00 10 19 46	LMP	Well, no. We got to get a DAP load in here to make sure they check first, right? Okay? Okay, it's - You got the DAP to where you want it?
00 10 19 56	CDR	I'm going to get it right now.
00 10 19 59	CDR	Done P30?
00 10 20 01	CMP	We haven't done P30 yet.
00 10 20 02	LMP	That's right.
00 10 20 03	CDR	I know, but don't you want to do - Before you do P30, don't you want to look at the DAP - -
00 10 20 07	CMP	No, no, that comes way down along the line.
00 10 20 08	CDR	Alright, alright, excuse me; go ahead.
00 10 20 10	LMP	Okay, P30.
00 10 20 13	CMP	Okay.
00 10 20 14	LMP	VERB 37, ENTER; 30, ENTER.
00 10 20 22	CMP	Okay.
00 10 20 23	CDR	I want GETI.

00 10 20 24   CMP   10:59:5830.

00 10 20 30   CMP   Okay? I like it. Do you like it?

00 10 20 31   CDR   Yes.

00 10 20 34   CMP   Okay, 136, good; minus three balls 45 is good; plus
                    00202, good. I like it. Proceed.

00 10 20 44   LMP   I can't - I can't even see the DSKY here.

00 10 20 51   CMP   Okay, 1685 ... Okay, I'll - Okay, that's good.

00 10 21 00   LMP   Okay.

00 10 21 01   CMP   Proceed.

00 10 21 04   CMP   Set your clocks.

00 10 21 05   CDR   Okay.

00 10 21 08   CDR   Let's see, might as well have a countdown for this
                    one, huh?

00 10 21 11   CMP   Yes.

00 10 21 12   CDR   Well, all our stuff is counting up though, isn't it?

00 10 21 16   LMP   I got mine; I can figure it - I've got 6 seconds to
                    go or some - 6 minutes to go, 5 minutes to go - either
                    way, so you can suit yourself.

00 10 21 25   LMP   Why don't you count down? I can call it out to you.

00 10 21 59   CMP   Okay, we don't have too much time. We've got to
                    get a boresight star and all that stuff, too.

00 10 22 04   LMP   Yes, I know it.

00 10 22 05   LMP   Okay, you got your - -

00 10 22 06   CMP   Just stand by, I don't - haven't started yet.

00 10 22 08   LMP   Start it on 50, 30 -

00 10 22 09   CDR   7.

00 10 22 11   CDR   37, 40 - 7, 46, 45, 44, 43, 42, 41 -

00 10 22 17 LMP   1.

00 10 22 18 CDR/LMP START.

00 10 22 19 LMP   Right.

00 10 22 20 CDR   37, 38 -

00 10 22 22 LMP   Right, right.

00 10 22 23 CDR   37 -

00 10 22 24 LMP   Right.

00 10 22 25 CMP   Okay, proceed.

00 10 22 26 LMP   (Sigh)

00 10 22 27 CMP   Proceed!

00 10 22 29 CDR   We are asking, Bill.

00 10 22 31 LMP   Oh, okay. Proceed, Roger.

00 10 22 35 CMP   Okay, we did a P52. Now we go to P00. Is that what we're doing?

00 10 22 43 LMP   ... go to P00.

00 10 22 45 CMP   Okay, go to 40 now.

00 10 22 49 LMP   Okay, P40.

00 10 22 50 CDR   You know you ought to go to P00 to maneuver to the burn attitude.

00 10 22 54 LMP   Yes, I will; I got it.

00 10 22 57 LMP   Okay. Okay.

00 10 22 59 LMP   Okay, P30. You got your optics power OFF, by the way? Oh, you're going to be using them, are you?

00 10 23 04 CMP   Yes, I got to use them.

00 10 23 05 LMP   Okay, CMC, ON.

00 10 23 07 CMP   CMC, ON.

00 10 23 08	LMP	ISS, ON. SCS, operating; test the CAUTION/ ...ING lights.
00 10 23 12	CMP	Okay, go ahead. Okay.
00 10 23 17	LMP	Okay. EMS MODE, STANDBY.
00 10 23 23	CDR	STANDBY.
00 10 23 24	LMP	EMS function DELTA-V, SET.
00 10 23 26	CDR	DELTA-V, SET.
00 10 23 28	LMP	Set DELTA indicator to 15868.
00 10 23 31	CDR	Right, I'll do that.
00 10 23 39	CDR	You guys can go on; I'll get this.
00 10 23 42	LMP	That's about all there is.
00 10 23 43	CDR	Okay.
00 10 24 09	CDR	Okay, 15868.
00 10 24 11	LMP	Okay. EM MODE - EMS MODE, AUTO.
00 10 24 15	CDR	AUTO.
00 10 24 16	LMP	EMS function DELTA-V, TEST.
00 10 24 18	LMP	SCS - SPS thrust light ON and OFF in 10 seconds.
00 10 24 22	CDR	Okay.
00 10 24 29	CDR	Good, minus 19.5. Good set; it's okay.
00 10 24 32	LMP	EMS MODE, STANDBY.
00 10 24 35	CDR	STANDBY.
00 10 24 36	LMP	DELTA-V, SET.
00 10 24 37	CDR	DELTA-V, SET.
00 10 24 38	LMP	Set DELTA-V_c.
00 10 24 39	CDR	What is the DELTA-V_c?

00 10 24 42	CMP	Okay, DELTA-V$_c$ is - 18.6.
00 10 24 56	LMP	18.6?
00 10 24 57	CMP	18.6.
00 10 25 03	CDR	Alright, set.
00 10 25 05	LMP	Okay, EMS function, DELTA-V.
00 10 25 06	CDR	DELTA-V.
00 10 25 07	LMP	Okay, NONESSENTIAL bus is going to MAIN B.
00 10 25 10	LMP	Okay, cycling the cryo fans.
00 10 25 13	CMP	I guess you can't complain.
00 10 25 25	LMP	Okay, I'll just do this once every minute, now.
00 10 25 30	LMP	Okay, BMAG MODE, three, RATE 2.
00 10 25 34	CDR	BMAG MODE, three, RATE 2 - 2, 3.
00 10 25 37	LMP	DELTA-V$_{cg}$, CSM.
00 10 25 41	CDR	CSM.
00 10 25 42	LMP	CMC MODE, FREE.
00 10 25 43	CDR	CMC MODE, FREE.
00 10 25 44	LMP	AUTO RCS, slixteen - 16, as required for ullage.
00 10 25 49	CDR	Okay, we have here.
00 10 25 50	LMP	Load the DAP.
00 10 25 52	CMP	Okay, VERB 48, ENTER. Okay, that's good, right?
00 10 25 55	LMP	Yes.
00 10 25 56	CMP	Good. Okay, we'll proceed. Okay, 63295, 635 - okay, that's wrong.
00 10 26 07	CMP	Plus 63295. Okay. Proceed. Be minus 163, minus 129. VERB 24, ENTER; minus 00163, ENTER; plus 00129, ENTER. Okay, proceed; VERB 46, ENTER. Okay.

00 10 26 45	LMP	Okay, ROTATIONAL CONTROL POWER, NORMAL, both AC/DC.
00 10 26 50	CDR	NORMAL, AC/DC.
00 10 26 51	LMP	DET is SET. VERB 37, ENTER; 00, ENTER.
00 10 26 57	CMP	VERB 30 - I got it!
00 10 26 59	CDR	I'm glad you're - -
00 10 27 00	LMP	SPACECRAFT CONTROL, CMC.
00 10 27 03	CDR	CMC.
00 10 27 04	LMP	CMC MODE, AUTO.
00 10 27 06	CDR	AUTO.
00 10 27 07	LMP	Maneuver to pad burn attitude with VERB 62, ENTER; VERB 49, ENTER.
00 10 27 12	CMP	VERB 62, ENTER; VERB 49, ENTER.
00 10 27 18	CDR	Reset that for zero.
00 10 27 20	CMP	VERB 25, ENTER; and it's 345 - 3, 4, 5 - -
00 10 27 25	LMP	No, that's wrong. You've got to have plus.
00 10 27 28	CMP	Alright, plus. Oh. 45, 00, ENTER; plus 188 - 1880, ENTER; plus 343; 00, ENTER. Okay. All set.
00 10 27 50	CDR	Go ahead.
00 10 27 51	CMP	Proceed?
00 10 27 52	CDR	Yes.
00 10 27 53	CMP	Proceed. Proceed!
00 10 27 54	CDR	Proceed.
00 10 27 55	LMP	Wait a minute. Okay, you got SCS AUTO and everything?
00 10 28 00	CMP	Huh?
00 10 28 01	LMP	You're all set, right?

00 10 28 02	CDR	Yes, that's all it takes.
00 10 28 05	LMP	BMAG's -
00 10 28 06	CDR	RATE 2, you called that.
00 10 28 07	LMP	Okay then. You don't have any other -
00 10 28 14	LMP	We maneuvering?
00 10 28 16	CDR	Yes.
00 10 28 24	CDR	Are we ever!
00 10 28 45	LMP	Which way you going?
00 10 28 47	CDR	Rolling right, and yawing left.
00 10 29 24	CC	Apollo 8, ...ston.
00 10 29 27	CDR	Go ahead, Houston; Apollo 8.
00 10 29 30	CC	Okay, we've got a telescope alignment if you'd like to give it a try. Your sextant star is still good, but if you had problems with that, folks have worked out that if you look through the telescope at 10:35, we have a shaft and trunnion that should point you at center of the earth, if you'd like to give that one a try.
00 10 29 50	CMP	Okay.
00 10 29 51	CDR	Okay.
00 10 29 54	CC	Okay, at 10:35 - -
00 10 29 58	CDR	Write that down.
00 10 29 59	CMP	Okay, here, I got it.
00 10 30 00	CC	- - the shaft angle 006.2, trunnion 18.9. Over.
00 10 30 13	CDR	Did you get that, Jim, there?
00 10 30 14	LMP	Roger, 10:35; shaft, 006.2; trunnion, 18.9.
00 10 57 30	CDR	You heard me, didn't you? I ... Not if you just do a real quicky.

00 10 57 40	LMP	Coming up on 2 minutes.
00 10 57 41	CDR	Okay.
00 10 57 51	LMP	Okay, 2 minutes. DELTA-V THRUST A, NORMAL.
00 10 57 55	CDR	MAIN THRUST, NORMAL.
00 10 58 00	LMP	TRANSLATIONAL HAND CONTROLLER, ARMED.
00 10 58 03	CDR	ARMED.
00 10 58 05	LMP	ROTATIONAL HAND CONTROLLER, both, ARMED.
00 10 58 06	CDR	Got yours?
00 10 58 07	CMP	Okay.
00 10 58 08	LMP	Tape recorder is RECORD, HIGH bit rate, and FORWARD.
00 10 58 13	LMP	Okay, stand by for DSKY - blanking.
00 10 58 17	CDR	Okay.
00 10 58 24	CDR	What happened to EMS, AUTO? Bill?
00 10 58 31	LMP	30 seconds.
00 10 58 32	CMP	30 seconds.
00 10 58 33	CDR	Okay.
00 10 58 35	LMP	I don't see how Wally did this ...
00 10 58 36	CMP	What's that?
00 10 58 37	LMP	Hold these things down.
00 10 58 42	CDR	We hear you.
00 10 58 44	CC	Stand by for a mark in 1 minute.
00 10 58 47	CDR	Roger; Apollo 8 standing by.
00 10 58 49	CC	- - 10 seconds.
00 10 58 50	LMP	Yes. Alright, I'll - -

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00 10 58 54	CC	5 seconds. 2, 1 -
00 10 58 59	CC	MARK.
00 10 59 00	CC	1 minute.
00 10 59 01	CDR	Roger.
00 10 59 06	CMP	(Singing)
00 10 59 12	LMP	Okay, at 30 seconds, get EMS MODE, AUTO.
00 10 59 13	CDR	Right.
00 10 59 18	CMP	(Singing)
00 10 59 23	CMP	Your DSKY should blank?
00 10 59 24	CDR	Blank.
00 10 59 25	LMP	EMS MODE, AUTO; average g is ON.
00 10 59 29	LMP	Check your PIPA bias.
00 10 59 30	CMP	No ullage.
00 10 59 31	CDR	No ullage, yes.
00 10 59 36	CMP	Counting down.
00 10 59 46	CMP	What's that do?
00 10 59 47	LMP	FLIGHT RECORDER.
00 10 59 50	CDR	10, 9 -
00 10 59 55	CMP	ENABLED.
00 11 00 01	CMP	Stop. At 10:02, it has to be OFF.
00 11 00 05	CDR	Okay, 10:02.
00 11 00 07	CMP	Okay.
00 11 00 08	CDR	Like a big spring.
00 11 00 09	LMP	Okay, have you gone forw - -

00 11 00 10	CMP	Two balls off.
00 11 00 11	LMP	Okay, now.
00 11 00 12	CDR	Okay.
00 11 00 13	CMP	It's holding; let's go, let's go through the checklist.
00 11 00 15	LMP	Okay, -kay, you got that; SPS THRU light, ON, ... Okay, DELTA-V THRUST A, OFF.
00 11 00 21	CDR	OFF.
00 11 00 22	LMP	Okay, verify THRUST is OFF. I verify it over here.
00 11 00 25	CDR	Right.
00 11 00 26	LMP	SPS PITCH and YAW circuit breakers, CLOSED.
00 11 00 30	CDR	They're CLOSED.
00 11 00 31	LMP	Okay, turn them OFF: GIMBAL MOTORS.
00 11 00 32	CDR	1, OFF.
00 11 00 33	LMP	Got it.
00 11 00 34	CDR	2, OFF.
00 11 00 35	LMP	Got it.
00 11 00 36	CDR	3, OFF.
00 11 00 37	LMP	Got it.
00 11 00 38	CDR	4, OFF.
00 11 00 39	LMP	Got it.
00 11 00 40	CDR	Okay.
00 11 00 41	LMP	TVC SERVO POWER, 1 and 2, OFF.
00 11 00 42	CDR	OFF.
00 11 00 43	LMP	FLIGHT RECORDER's OFF; MAIN BUS ties going OFF.
00 11 00 51	CMP	Okay.

00 11 00 53	LMP	Okay, null residuals.
00 11 00 54	CMP	Okay, proceed. You've got your ...
00 11 00 59	LMP	Proceed.
00 11 01 03	CDR	Got them? Do I null them?
00 11 01 05	LMP	Null residuals.
00 11 01 07	CMP	20.4.
00 11 01 17	CMP	That's an awful lot.
00 11 01 19	CDR	Yes, I know it.
00 11 01 34	CDR	There you are.
00 11 01 35	CMP	Okay - Okay. Null - residuals - residuals are nulled.
00 11 01 40	LMP	Okay, record DELTA-V COUNTER and residuals.
00 11 01 42	CMP	You can turn this OFF before - -
00 11 01 43	CDR	I turned it OFF ...
00 11 01 47	LMP	EMS function, OFF.
00 11 01 48	CDR	OFF.
00 11 01 49	LMP	EMS MODE, STANDBY.
00 11 01 52	CDR	STANDBY.
00 11 01 53	LMP	BMAG MODE, three, RATE 2.
00 11 01 54	CDR	RATE 2.
00 11 01 55	LMP	DEADBAND, MAX.
00 11 01 56	CDR	DEADBAND, MAX.
00 17 53 35	CMP	How's that, sports fans? All balls.
00 17 53 42	LMP	As soon as you've got an audience, you do great.
00 17 53 52	CMP	14640.

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00 17 54 04 CMP   Time.

00 17 54 06 LMP   17:53:1936, got it.

00 17 54 15 CDR   How many markings for this set is that?

00 17 54 21 CMP   There's two stars and three marks per set.

00 17 54 24 LMP   That's three for that second – that's the same star, second set, third set of marks. And then you've got – –

00 17 54 29 CMP   Do I have six marks, total?

00 17 54 32 LMP   You got six marks, total. You need three more on this same star, right?

00 17 54 34 CMP   Yes, okay. There's the third one, there.

00 17 54 42 LMP   Okay.

00 17 54 43 CMP   Okay, I got –

00 17 55 08 CMP   Okay, I go three?

00 17 55 49 LMP   Oh – you on hold?

00 17 55 51 CMP   Yes.

00 17 55 52 LMP   18 and 3, huh?

00 17 55 56 CMP   Yes.

00 17 56 07 CMP   74645.

00 17 56 11 LMP   Okay.

00 17 56 14 CMP   Okay. 17:55:33?

00 17 56 20 LMP   Right.

00 17 56 39 CMP   3.

00 17 56 40 LMP   3.

00 17 58 21 LMP   You in hold?

00 17 58 22 CMP   Hold.

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00 17 58 34	LMP	8 and 1.
00 17 58 35	CMP	Right.
00 17 58 36	LMP	Got it.
0C 17 58 43	CMP	74655.
00 17 58 46	LMP	Got it.
00 17 58 52	CMP	17:58:19.
00 17 58 56	LMP	Got it.
00 17 59 14	CMP	3.
00 17 59 17	LMP	3.
00 18 00 35	CMP	Oh, oh.
00 18 00 47	LMP	Three zeros, okay?
00 18 00 56	LMP	12662.
00 18 00 58	CMP	Right.
00 18 01 01	CMP	Okay.
00 18 01 06	LMP	It only went down 17. Wait a minute.
00 18 01 10	CMP	What's that?
00 18 01 12	LMP	It only went down 17 - 17, 18, 00, 23, 00. Okay?
00 18 01 23	CMP	Okay.
00 18 01 25	LMP	Now I get this.
00 18 01 27	CMP	Proceed.
00 18 01 30	CMP	Okay, new star?
00 18 01 31	LMP	New star, number 22.
00 18 01 35	CMP	Okay, what is it, 22, star - What's the code after it?
00 18 01 40	LMP	It doesn't say.

00 18 01 45	CMP	Yes, 00120 - 1, 2, 0.
00 18 01 48	LMP	Which way are you going to be going? Far horizon?
00 18 01 51	CMP	Yes, it'll be at the same horizon. Too close to gimbal lock? Yes, 03. It won't be a far move, though. 21 plus 22, ENTER; proceed; that should be a zero.
00 18 02 16	CMP	AUTO?
00 18 02 18	LMP	Let's - No, why don't you proceed? Let's see where it - where it's going to take it.
00 18 02 31	LMP	Okay, we're - Pitch 123, yaw 305 - Oh, we're getting right under it.
00 18 02 38	CMP	Yes. All set?
00 18 02 40	LMP	Okay, CMC and AUTO.
00 18 02 43	CMP	Okay.
00 18 03 12	CMP	Okay - -
00 18 03 13	LMP	Okay, we're there.
00 18 03 14	CMP	Okay. How's that? ... zero off.
00 18 03 52	LMP	70645.
00 18 03 57	CMP	What was that, again?
00 18 03 58	LMP	70645. Trunnion?
00 18 04 01	CMP	Okay.
00 18 04 33	LMP	18:04:3472. ... with something right, here.
00 18 04 46	CMP	I got 03. Okay?
00 18 04 47	LMP	Yes.
00 18 05 06	LMP	3.
00 18 05 07	CMP	3.
00 18 06 52	CMP	18 was - Go ahead.

00 18 06 56	LMP	1898, trunnion.
00 18 07 19	CMP	What - what the other ... Is this the third one or the fourth one?
00 18 07 24	LMP	The third one was - 31 - -
00 18 11 14	CDR	Houston, do you read Apollo 8? We've got a lot of noise.
00 18 11 30	CMP	Are we in -
00 18 11 32	LMP	We're in hold, you want to go - What you want, AUTO?
00 18 11 36	CMP	No, no, just ...
00 18 11 39	CDR	Houston, Apollo 8.
00 18 11 41	CMP	...
00 18 11 43	CC	Apollo 8, Houston; go.
00 18 11 45	CDR	Roger; we lost you when you started talking about the - -
00 21 10 09	LMP	- - 4, 5; 5, 4, 3, 2, 1. Over.
00 21 10 14	LMP	Roger; and give us a comment on the voice quality.
00 21 10 24	CMP	OPTICS POWER going OFF.
00 21 10 26	LMP	Okay, you've already - OPTICS DRIVE, check the star - check boresight star.
00 21 10 32	CMP	I've checked them all.
00 21 10 34	LMP	Okay, VERB 37 - How did you get out of that?
00 21 10 44	CMP	It's all been checked.
00 21 10 45	LMP	Okay, VERB 37, ENTER; 40, ENTER.
00 21 10 49	CMP	Okay.
00 21 10 52	LMP	...
00 21 11 06	LMP	VERB 37, ENTER - -

nothing on Day 2

DAY 3 *35 - hour interval*

02 08 39 44	LMP	- - hazy, so we haven't really taken too many pictures on the way out. Every now and then we have taken a shot with the 70-millimeter camera and 80-millimeter lens at f:11, 1/250th, but it's questionable how good these will be, because of the haze on the windows.
02 08 40 14	LMP	Another problem has been trying to record the development of the smear on the windows. Seemed to come pretty quick on window number 3. And the technique of - of taking a picture when the sun's 85 degrees incidence is not possible, because the window frames are so thick that you can't get any sun on them with an 85-degree incidence. What pictures have been taken, have been taken about 60 to 70 degrees incidence with various f-stops.
02 08 41 03	LMP	Anybody else have anything for the record?
02 08 41 07	CDR	No.
02 08 41 08	LMP	Jim?
02 08 41 09	CMP	Yes, you might mention about this hard thing to open here.
02 08 41 13	LMP	One point we might mention is that the foodbox doors are hard to close. Looks like the foodbox has split out a little bit on the left - -
02 08 41 23	CMP	The handle's bent.
02 08 41 24	LMP	- - left side. And in - look's like we've gotten the handle bent in trying to close the door. We're able to lock it on one side now, on the right side, but not on the left. The food has generally been good, particularly the last meal: butterscotch pudding, beef stew, grapefruit drink, and chicken soup. Notable - -
02 08 41 53	CMP	Hot wa - -
02 08 41 55	CDR	- - the notable, mainly notable ones were the grapefruit drink and butterscotch pudding.

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02 08 42 02   CMP   Well, Bill, you might mention the hot water makes
                       a big improvement, too.

02 08 42 06   LMP   Jim Lovell says the hot water makes a big improve-
                       ment. The meals I've had h . been quite tasty,
                       though none of us have really gone overboard for
                       the little bread cru - cubes and cereal cubes.

02 08 42 33   LMP   Also, I'd like to suggest that if. they ever fly
                       one of these TV cameras again, they put a - some
                       kind of a sight on it. Sort of ri   'ous to have
                       a 9-degree field-of-view lens wit!   y of aiming
                       it except for looking down the sid .. putting some
                       chewing gum on the top.

02 08 42 57   LMP   Also might tell Doc Frome that his toothpaste tastes
                       pretty good. I don't know what kind of job it does
                       on your teeth, but it's nice for settling your
                       stomach after dinner.

02 08 43 10   LMP   Anything else, Frank?

02 08 43 11   CMP   We used it for frosting on the fruitcake.

02 08 43 18   LMP   Jim Lovell is be - engaged in an activity which I
                       shan't describe, so I think I'll cut this short and
                       get my oxygen mask.

02 08 43 24   CMP   But that could be improved, also (laughter).

02 12 59 10   LMP   DSKY blanks at minus 35 seconds.

02 12 59 14   CMP   Alright, stand by.

02 12 59 17   CMP   DSKY blank.

02 12 59 19   CMP   Okay.

02 12 59 20   LMP   LIMIT CYCLE, OFF.

02 12 59 23   CDR   LIMIT CYCLE, OFF.

02 12 59 24   LMP   EMS MODE, AUTO.

02 12 59 25   CDR   AUTO.

02 12 59 28	LMP	Okay, at 0/16 85, null $V_{gx, y, and z}$. Null component. Tell me when you're going to burn.
02 12 59 43	CDR	Okay, stand by.
02 12 59 47	CDR	At the flash.
02 12 59 50	LMP	4, 1 -
02 12 59 55	CMP/LMP	BURN.
02 12 59 58	CDR	11 seconds.
02 13 00 00	LMP	Burning.
02 13 00 01	CMP	11 seconds.
02 13 00 09	CMP	Should be OFF by now.
02 13 00 12	CDR	... That's good.
02 13 00 13	LMP	Okay, 12 seconds.
02 13 00 15	CMP	12 seconds.
02 13 00 16	LMP	Okay, -V COUNTER, residuals; TAPE RECORDER to STOP - -
02 13 00 55	CMP	Okay, now do VERB 66, ENTER.
02 13 00 57	LMP	VERB 66, ENTER.
02 13 01 01	CMP	Houston, Apollo 8.
02 13 01 06	CC	Go ahead.
02 13 01 08	CMP	Roger; burn on time, angles nominal - -
02 20 57 28	CMP	What's this - -
02 20 57 29	CDR	What's that LOS time, Bill?
02 20 57 32	LMP	58:58 - 68:58.
02 20 57 35	CDR	See if we lose the signal then.
02 20 57 37	LMP	Okay.

02 20 57 38	CDR	What was the seconds? Jim?
02 20 57 42	CMP	I didn't bother with it; wasn't it something like 58:02?
02 20 57 54	CC	Apollo 8, 10 seconds to go. You're GO all the way.
02 20 58 00	CDR	Roger.
02 20 58 02	CMP	58:04.
02 20 58 06	CDR	Gees.
02 20 58 10	LMP	S-BAND VOLUME, down. L ∪ S
02 20 58 12	CDR	That was great, wasn't it? I wonder if they've turned it OFF.
02 20 58 19	LMP	(Laughing) Chris probably said, "No matter what happens, turn it OFF."
02 20 58 24	CMP	Okay. My S-volume is down.
02 20 58 25	C	Alright, let's go ahead with the checklist. Okay, we've got 10 minutes. We want to hold at the 6-minute mark.
02 20 58 31	LMP	Okay. You got the STABILIZATION CONTROL SYSTEM's circuit breakers, panel 8, CLOSED.
02 20 58 34	CDR	Right.
02 20 58 35	LMP	Closed SPS, 12, CLOSED.
02 20 58 36	CDR	Right.
02 20 58 37	LMP	DEADBAND, MINIMUM.
02 20 58 39	CDR	DEADBAND, MINIMUM.
02 20 58 40	LMP	RATES, LOW.
02 20 58 41	CDR	LOW.
02 20 58 42	LMP	LIMIT CYCLE, ON.
02 20 58 43	CDR	LIMIT CYCLE, ON.
02 20 58 44	LMP	MANUAL ATTITUDE, three, RATE COMMAND.

02 20 58 47	CDR	RATE COMMAND.
02 20 58 48	LMP	BMAG MODE, three, ATT 1/RATE 2.
02 20 58 49	CDR	ATT 1/RATE 2.
02 20 58 52	LMP	ROTATIONAL CONTROL POWER DIRECT, both, OFF.
02 20 58 54	CDR	OFF.
02 20 58 55	LMP	SCS TVC, two, RATE COMMAND.
02 20 58 59	CDR	RATE COMMAND.
02 20 59 01	LMP	TVC GIMBAL DRIVE, PITCH and YAW, AUTO.
02 20 59 03	CDR	AUTO.
02 20 59 05	LMP	Have you got your GDC aligned?
02 20 59 06	CDR	Yes.
02 20 59 11	CDR	GDC aligned.
02 20 59 13	LMP	CMC and AUTO.
02 20 59 14	CDR	CMC and AUTO.
02 20 59 18	LMP	DELTA-V – Set in DELTA-V.
02 20 59 22	CDR	Up here, you mean?
02 20 59 23	LMP	Yes.
02 20 59 24	CDR	Yes.
02 20 59 25	LMP	Just going back and catching all those things.
02 20 59 38	CDR	Is that all?
02 20 59 39	LMP	That's it.
02 20 59 41	LMP	Waiting to turn on the BUS ties.
02 21 00 23	CDR	Okay, 8 minutes.
02 21 01 00	CMP	Well, the main thing to be is be cool.

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02 21 01 03	CDR	Gosh, it is cool.
02 21 01 07	CMP	It's up to 80 in the cockpit.
02 21 01 10	LMP	No, I think - just when my clothes touch me, it gets cold, huh?
02 21 01 18	CMP	Well, I'll tell you, gentlemen; that moon is pretty close.
02 21 01 20	CDR	7 minutes.
02 21 01 46	LMP	Pressure should go down to about 1500.
02 21 01 48	CMP	Huh?
02 21 01 50	LMP	Helium pressure will be going down to about 1500.
02 21 01 53	CMP	Will it stay there?
02 21 01 55	CDR	Okay, let's go.
02 21 01 57	CMP	... minute, Frank.
02 21 02 02	CDR	Come on, Bill; 6 minutes.
02 21 02 06	LMP	Okay. MAIN BUS ties, going ON.
02 21 02 16	LMP	A is ON; B is ON.
02 21 02 22	LMP	TVC SERVO POWER, one, AC 1, MAIN A.
02 21 02 24	CDR	AC 1, MAIN A.
02 21 02 26	LMP	AC 2, MAIN B.
02 21 02 27	CDR	AC 2, MAIN B.
02 21 02 28	LMP	TRANSLATION CONTROL POWER, ON.
02 21 02 29	CDR	ON.
02 21 02 30	LMP	ROTATIONAL CONTROL POWER NORMAL 2, AC.
02 21 02 32	CDR	AC.
02 21 02 33	LMP	ROTATIONAL HAND CONTROLLER number 2, ARMED.
02 21 02 35	CDR	ARMED.

02 21 02 37	LMP	Okay. Stand by for the primary TVC check.
02 21 02 39	LMP	You want PITCH 1, ON?
02 21 02 46	CDR	Not quite.
02 21 02 47	CMP	It's 5 minutes.
02 21 02 49	LMP	69:03:20; we'll just get it at 69:03.
02 21 02 53	LMP	Okay, ready?
02 21 02 54	CDR	Yes.
02 21 02 56	LMP	Okay. Go ahead and start PITCH 1.
02 21 02 57	CDR	1.
02 21 02 58	LMP	Got it.
02 21 03 00	CDR	YAW 1.
02 21 03 01	LMP	Got it.
02 21 03 02	CDR	Okay.
02 21 03 03	LMP	TRANSLATIONAL HAND CONTROLLER, clockwise.
02 21 03 04	CDR	Clockwise.
02 21 03 06	LMP	Verify no MTVC.
02 21 03 07	CDR	No MTVC.
02 21 03 09	LMP	Okay, SCS sec - TV - secondary TVC check.
02 21 03 13	CDR	Alright.
02 21 03 14	LMP	PITCH 2 and YAW 2, ON.
02 21 03 16	CDR	PITCH 2.
02 21 03 17	LMP	Got it.
02 21 03 18	CDR	YAW 2.
02 21 03 19	LMP	Got it.

02 21 03 20	LMP	Set GPI trim.
02 21 03 22	CMP	Minus 161.
02 21 03 24	LMP	Got it.
02 21 03 25	CMP	Plus 129.
02 21 03 28	LMP	Verify MTVC.
02 21 03 31	CDR	Verified.
02 21 03 32	LMP	TRANSLATIONAL HAND CONTROLLER, NEUTRAL.
02 21 03 34	CDR	NEUTRAL.
02 21 03 35	LMP	GPI returns to zero.
02 21 03 36	CDR	Zero.
02 21 03 37	LMP	ROTATIONAL CONTROL POWER NORMAL 2, AC/DC.
02 21 03 40	CDR	AC/DC.
02 21 03 45	LMP	Okay. You want to trim it one more time.
02 21 03 47	CDR	Okay.
02 21 03 48	LMP	Okay.
02 21 03 49	CDR	Ready?
02 21 03 50	LMP	Negative.
02 21 03 52	LMP	BMAG MODE, three, RATE 2.
02 21 03 53	CDR	RATE 2.
02 21 03 54	LMP	SPACECRAFT CONTROL, CMC.
02 21 03 56	CDR	CMC.
02 21 03 58	LMP	CMC MODE, AUTO.
02 21 03 59	CDR	AUTO.
02 21 04 00	LMP	PROCEED.

02 21 04 02 CDR   PROCEED. We're right there.

02 21 04 04 LMP   Okay. You ready to bypass?

02 21 04 08 CDR   Yes.

02 21 04 09 LMP   ATT 1/RATE 2.

02 21 04 10 CDR   ATT 1/RATE 2.

02 21 04 11 LMP   ENTER.

02 21 04 13 CDR   ENTER.

02 21 04 14 LMP   Gimbal test option.

02 21 04 15 CDR   Right.

02 21 04 16 LMP   Verify CMC.

02 21 04 18 CDR   Right.

02 21 04 19 LMP   Proceed. Call it out.

02 21 04 24 CDR   Oh, you ENTERED instead of - you ENTERED, Jim.
                    Alright, you would bypass ... - -

02 21 04 33 CMP   ... It's okay. Forget them.

02 21 04 35 CDR   Counting down. Okay?

02 21 04 36 LMP   What happened?

02 21 04 37 CDR   He ENTERED - -

02 21 04 38 CMP   Should have proceeded. No sweat.

02 21 04 40 CDR   We're just counting down, now.

02 21 04 41 LMP   Okay.

02 21 04 44 CDR   3 minutes and 34 seconds, counting.

02 21 04 52 LMP   Okay, ROTATIONAL CONTROL POWER, DIRECT, both,
                    MAIN A, MAIN B.

02 21 04 56 CDR   MAIN A and MAIN - -

02 21 04 57	LMP	SCS helium valve, AUTO, verify.
02 21 05 02	LMP	LIMIT CYCLE, OFF.
02 21 05 04	CDR	OFF.
02 21 05 05	LMP	FDAI scale, 50/15.
02 21 05 08	CDR	Alright.
02 21 05 10	LMP	Okay, at 2 minutes to go, we'll hit the DELTA-V THRUST A, NORMAL.
02 21 05 15	CDR	Alright.
02 21 05 21	LMP	I'm going to give you a GO - -
02 21 05 22	CDR	At that point there?
02 21 05 23	CMP	Yes.
02 21 05 26	LMP	At 2 minutes to go?
02 21 05 27	CDR	Hey, you know the one thing - The problem is we didn't go to trim.
02 21 05 33	LMP	Yes, I said trim - it goes to trim - -
02 21 05 35	CDR	Okay.
02 21 05 36	LMP	Or zero.
02 21 05 37	LMP	It's to trim!
02 21 05 38	CMP	It is? Okay.
02 21 05 39	LMP	Yes.
02 21 05 41	CDR	On that horizon, boy, I can't see squat out there.
02 21 05 47	LMP	You want us to turn off your lights to check it?
02 21 05 49	CMP	Hey, I got the moon.
02 21 05 51	LMP	Do you?
02 21 05 52	CMP	Right below us.